

WHAT IS CLAIMED IS:

1. An apparatus for supporting fuel assemblies in a reactor pressure vessel including a core, said apparatus comprising:

a plurality of support beams; and

at least one removable support plate disposed on at least one of said plurality of support beams.

2. The apparatus according to Claim 1 wherein said at least one removable support plate and said plurality of support beams form a core support.

3. The apparatus according to Claim 1 further comprising a support ring having an inner periphery and an outer periphery, said plurality of support beams extending between said inner periphery, said plurality of support beams intersecting one another to form a support beam matrix.

4. The apparatus according to Claim 1 wherein said at least one removable support plate is configured to be removed from above the core.

5. The apparatus according to Claim 1 wherein said at least one removable support plate comprising at least one groove for receiving at least one of said plurality of support beams, said support beams comprise a protrusion extending along a length thereof, said protrusion receivable within said at least one groove.

6. The apparatus of Claim 1 wherein said at least one removable support plate comprising at least one support plate flow passage.

7. The apparatus according to Claim 6 wherein said at least one removable support plate comprising at least one removable support block disposed thereon, said removable support block having at least one support block flow passage in flow communication with said at least one support plate flow passage.

8. The apparatus according to Claim 7 wherein said removable support block comprising a flow inlet portion extending from one side of said removable

support block, said flow inlet portion providing flow communication to said at least one support block flow passage, said flow inlet portion receivable within said at least one support plate flow passage.

9. A support plate comprising:

a top surface;

a bottom surface spaced apart from said top surface by a thickness, said bottom surface having at least one groove;

a guide tube opening through said thickness; and

at least one flow passage through said thickness.

10. The support plate according to Claim 9 wherein said quick tube opening includes at least one cruciform shaped slot, said bottom surface has a first groove, a second groove, a third groove and a fourth groove, said first, second, third and fourth grooves positioned around said guide tube opening.

11. The support plate according to Claim 10 wherein at least two of said first groove, second groove, third groove and fourth groove extend along said bottom surface substantially parallel to each other, and

wherein one end of at least one of said first groove, second groove, third groove and fourth groove intersects with one end of at least one of said first groove, second groove, third groove and fourth groove.

12. The support plate according to Claim 9 further comprising a removable support block having a flow inlet portion extending from one side of said removable support block, said flow inlet portion providing flow communication to another side of said removable support block, said flow inlet portion receivable within said at least one flow passage.

13. A nuclear reactor comprising:

a reactor pressure vessel;

a reactor core located inside said reactor pressure vessel; and

a core plate located inside said reactor pressure vessel, said core plate comprising:

a plurality of support beams; and

at least one removable support plate disposed on at least one of said plurality of support beams.

14. The nuclear reactor according to Claim 13 wherein said at least one removable support plate comprises at least one groove for receiving at least one of said plurality of support beams.

15. The nuclear reactor according to Claim 13 wherein said at least one removable support plate comprises at least one support plate flow passage.

16. The nuclear reactor according to Claim 15 wherein said at least one removable support plate comprises at least one removable support block disposed thereon, said at least one removable support block comprising at least one support block flow passage in flow communication with said support plate flow passage.

17. The nuclear reactor according to Claim 16 wherein said at least one removable support block comprises an inlet flow projection extending from one side and a flow outlet extending on an opposite side, said inlet flow projection receivable within said support plate flow passage.

18. The nuclear reactor according to Claim 17 wherein said at least one removable support block comprises an internal flow passage providing flow communication between said inlet flow projection and said flow outlet.

19. The nuclear reactor according to Claim 18 wherein said internal flow passage directs flow into a first channel and a second channel, said first and second channels located within said at least one removable support block.

20. The nuclear reactor according to Claim 19 wherein said first channel has a first flow outlet and said second channel has a second flow outlet.